

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the above-referenced application:

1 1. (Currently amended) A flexible circuit having vias disposed to
2 minimize discontinuity in a ground plane separating opposing transmission lines, said
3 ~~flex~~ flexible circuit comprising:

4 a first type of electrical connection pad array disposed on a first surface of said
5 flexible circuit, wherein at least one pad of the first type of electrical connection pad
6 array is and electrically coupled to a first transmission line that lies along the first
7 surface;

8 a second type of electrical connection pad array disposed on a second surface
9 of said flexible circuit and offset from the first type of electrical connection pad array,
10 wherein at least one pad of the second type of electrical connection pad array is and
11 electrically coupled to a second transmission line that lies along the second surface
12 and wherein said second type of electrical connection pad array has is arranged to
13 have a higher areal density than said first type of electrical connection pads and said
14 first type of electrical pad array is offset from said second type of electrical pad array;
15 and

16 an intermittent ground plane arranged substantially parallel to and interposed
17 between the first and second surfaces of said flexible circuit, said flexible circuit
18 configured with vias that pass entirely through the flexible circuit and arranged along
19 an axis substantially orthogonal to the first and second surfaces, the vias disposed
20 proximate said first type of electrical connection pad array, and extending through a
21 breaks in the intermittent ground plane to provide for electrically coupling couple said
22 first transmission line and said second transmission line, such that said vias minimize
23 discontinuity in said intermittent ground plane and wherein the at least one pad of the
24 first type of electrical connection pad array is collocated with a respective via.

1 2. (Original) The flexible circuit as described in Claim 1 wherein said
2 first type of electrical connection pads are flip-chip pads.

1 3. (Original) The flexible circuit as described in Claim 1 wherein said
2 first type of electrical connection pads are wirebond bond pads.

1 4. (Original) The flexible circuit as described in Claim 3 wherein at
2 least one of said plurality of vias is coincident with one of said plurality of wirebond
3 bond pads.

1 5. (Original) The flexible circuit as described in Claim 2 wherein at
2 least one of said plurality of vias is coincident with one of said plurality of flip-chip
3 pads.

1 6. (Original) The flexible circuit as described in Claim 4 wherein at
2 least one of said plurality of wirebond bond pads is substantially tear-dropped shape.

1 7. (Original) The flexible circuit as described in Claim 5 wherein at
2 least one of said plurality of flip-chip pads is substantially tear-dropped shape.

1 8. (Original) The flexible circuit as described in Claim 1 wherein said
2 first type of electrical connection pads are configured for coupling an integrated
3 circuit thereto.

1 9. (Original) The flexible circuit as described in Claim 1 wherein said
2 first type of electrical connection pads are configured for coupling an optical module
3 thereto.

1 10. (Original) The flexible circuit as described in Claim 1 wherein said
2 second type of electrical connection pads are a ball grid array or pin grid array.

1 11. (Currently amended) An electrical connection assembly having
2 vias disposed to combine electrical discontinuity, said electrical connection
3 comprising:

4 a flexible circuit comprising a ground plane separating a first surface and a
5 second opposing surface, said first surface having a first transmission line ~~coupled~~
6 ~~thereto~~ and said second surface having a second transmission line ~~coupled thereto~~; and
7 vias that pass entirely through the flexible circuit, the vias a via closest to a
8 first region of electrical connection pads configured to receive a wirebond and offset
9 from connectors on said second opposing surface, one of said vias electrically
10 coupling said first transmission line and said second transmission line wherein said
11 wirebond generates electrical discontinuity and said via generates electrical
12 discontinuity and wherein said via is proximate said first region of electrical
13 connection pads for substantially collocating combining said electrical discontinuity
14 caused by said wirebond and said electrical discontinuity caused by said via, thereby
15 minimizing discontinuity in the electrical connection assembly.

1 12. (Original) The electrical connection assembly as described in
2 Claim 11 wherein said first region of electrical connection pads comprises at least one
3 via capture pad.

1 13. (Original) The electrical connection assembly as described in
2 Claim 12 wherein said via capture pad is substantially teardrop shaped.

1 14. (Original) The electrical connection assembly as described in
2 Claim 11 further comprising a second region of electrical connection pads comprising
3 a ball grid array or pin grid array.

1 15. (Original) The electrical connection assembly as described in
2 Claim 11 wherein said first region of electrical connection pads are configured for
3 coupling an optical module thereto.

1 16. (Original) The electrical connection assembly as described in
2 Claim 14 wherein said first region of electrical connection pads has an areal density
3 less than said second region of electrical connection pads.

1 17. (Original) The electrical connection assembly as described in
2 Claim 16 wherein said first region of electrical connection pads are a linear array of
3 pads.

1 18. (Currently amended) A circuit assembly having vias disposed
2 proximate a plurality of bond pads to minimize electrical discontinuity in said circuit
3 assembly, said circuit assembly comprising:

4 a flexible circuit comprising a first surface and a second opposing surface
5 separated by a ground plane, said first surface having a first conductive layer ~~coupled~~
6 thereto and said second surface having a second conductive layer ~~coupled thereto~~;

7 said plurality of bond pads coupled to said first conductive layer and
8 configured to receive a wirebond electrical connection, said bond pads offset from
9 connectors on said second surface;

10 electrical connection pads coupled to said second conductive layer configured
11 to electrically couple an external electrical assembly to said second conductive layer;
12 and

13 vias that pass entirely through the flexible circuit, the vias closest to collocated
14 with said plurality of bond pads configured to receive a wirebond and offset from
15 connectors on said second opposing surface, said vias enabling electrical coupling of
16 said first conductive layer and said second conductive layer, said vias disposed to
17 minimize discontinuity in said circuit assembly.

1 19. (Original) The circuit assembly as described in Claim 18 wherein
2 said plurality of bond pads are via capture pads.

1 20. (Original) The circuit assembly as described in Claim 18 wherein
2 said plurality of bond pads are configured for coupling an optoelectronic device
3 thereto.

1 21. (Original) The circuit assembly as described in Claim 18 wherein
2 at least one of said vias shares one of said plurality of bond pads.

1 22. (Original) The circuit assembly as described in Claim 21 wherein
2 at least one of said plurality of bond pads is substantially tear dropped shaped.

1 23. (Original) The circuit assembly as described in Claim 18 wherein
2 said plurality of bond pads are disposed with an areal density less than said connection
3 pads.